Kramer Electronics, Ltd.

USER MANUAL

Model:

F-110

XGA Line Transmitter on Dual-slot Wall-plate Insert

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups[1] that are clearly defined by function.

Thank you for purchasing the Kramer **F-110** *XGA Line Transmitter on dual-slot wall-plate insert* which is ideal for:

- Presentation venues
- Multimedia applications
- Long range graphics distribution for schools, hospitals, security, and stores

The **F-110** can be mounted on Kramer[2]:

- Wall-plate insert mounting frames for Ackermann floor boxes
- TBUS table connection buses connecting surfaces
- Wall plate insert frames

The package includes the following items:

- **F-110**
- Power adapter (12V DC Input) and this user manual[3]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high-performance high-resolution cables[4]

1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 The complete list of Kramer products can be found on our Web site at http://www.kramerelectronics.com

3 Download up-to-date Kramer user manuals from the Internet at http://www.kramerelectronics.com

4 The complete list of Kramer cables is on our Web site at http://www.kramerelectronics.com

3 Overview

The Kramer **F-110** dual-slot wall-plate insert is an XGA line transmitter that accepts up to a UXGA video signal, encodes it to a twisted pair (TP) signal, and transmits the TP signal to a compatible TP receiver[1].

In particular, the **F-110**:

- Has a resolution of up to UXGA
- Includes the Kramer Power Connect™ feature
- Has a 12V DC power supply
- Fits into various insert mounting surfaces[2]

3.1 About the Power Connect Feature

The Power Connect feature applies as long as the cable can carry power. This feature is available when using STP cable and the distance does not exceed 50m on standard CAT 5 cable. For longer distances, heavy gauge cable should be used[3]. For units which are connected via RJ-45 connectors, make sure that the shield of the STP cable is connected to the metal casing of the connectors on both ends of the cable. For units which are connected via terminal block connectors, the shield of the STP cable must be connected to a ground terminal on the units at both ends (use the ground terminal of the power supply connection if necessary).

For a CAT 5 cable exceeding a distance of 50m, separate power supplies should be connected to the transmitter and to the receiver simultaneously**.**

3.2 Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)

We recommend that you use Shielded Twisted Pair (STP) cable. There are different levels of STP cable available, and we advise you to use the best quality STP cable that you can afford. Our non-skew-free cable, Kramer **BC-STP** is intended for analog signals where skewing is not an issue. For cases where there is skewing, our UTP skew-free cable, Kramer **BC-XTP**, may be used. Bear in mind, though, that we advise using STP cables where possible, since the compliance to electromagnetic interference was tested using those cables.

Although Unshielded Twisted Pair (UTP) cable might be preferred for long range applications, the UTP cable should be installed far away from electric

1 For example, the Kramer TP-120 or PT-120

2 For example, TBUS units, wall plate frames or Ackermann insert mounting frames (see section 6)

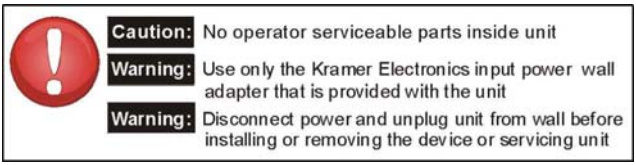
3 CAT 5 cable is still suitable for the video/audio transmission, but not for feeding the power at these distances

cables, motors and so on, which are prone to create electrical interference. However, since the use of UTP cable might cause inconformity to electromagnetic standards, Kramer does not commit to meeting the standard with UTP cable.

3.3 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables[1] to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low-quality cables).
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your Kramer **F-110** away from moisture, excessive sunlight and dust



1 Available from Kramer Electronics on our Web site at http://www.kramerelectronics.com

4 Your F-110 XGA Line Transmitter

Figure 1 and Table 1 define the **F-110**:

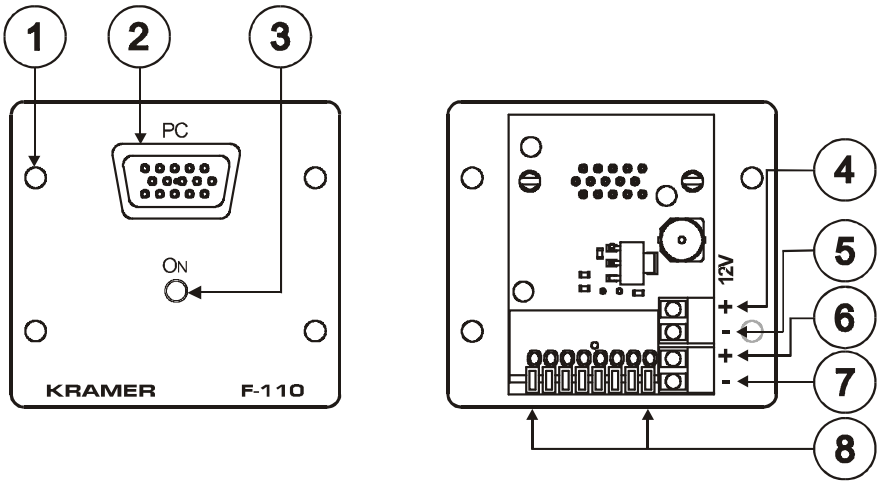


Figure 1: F-110 XGA Line Transmitter

Table 1: F-110 Features

#	Feature		Function
1	Screw holes (4)		Fix the wall plate to the connecting surface
2	*PC INPUT* 15-pin HD F Connector		Connect to the XGA source
3	*ON* LED		Lights green when receiving power
4	12V DC	+ PIN[1]	Connect (+) to the connector for powering the unit
5		- PIN	Connect (-) to the Ground
6		+ PIN[1]	Connect (+) to the connector for powering the unit
7		- PIN	Connect (-) to the Ground
8	Line output 8-pin terminal block Connector[2]		Connects to the *LINE IN* RJ-45 connector on the Kramer **PT-120** or **TP-120** *XGA Line Receiver*

1 One set is used to power the F-110 and the other set can be used to power an adjacent insert

2 See section 5.1

5 Connecting the F-110

The Kramer **F-110** together with the Kramer **PT-120** or **TP-120** XGA line receivers constitute a VGA/XGA-to-twisted pair transmitter and receiver.

To connect the **F-110**, do the following:

1. Unscrew the two screws that fasten each of the two adjacent blank plates to the connecting surface and remove them.
2. Place and align the **F-110** dual-slot wall-plate insert over the opening.
3. Connect the cables to the rear side of the insert, that is, attach the:
   - Terminal block line output of the **F-110** to the pre-installed UTP wiring that connects to the TP receiver (with a range of more than 300ft (>100m)), see section 5.1
   - 12V DC power supply to either one of the power terminal blocks (connect the wire labeled "+" to the +12V pin, and the wire labeled "–" to the GND pin) taking care that the polarity is correct. You can use the second power terminal block to power an additional unit (for example, an adjacent insert on the mounting surface)
4. Insert the four screws to fix the insert in place, and tighten them.
5. Connect the UXGA source to the PC IN connector (for example, a computer graphics source).

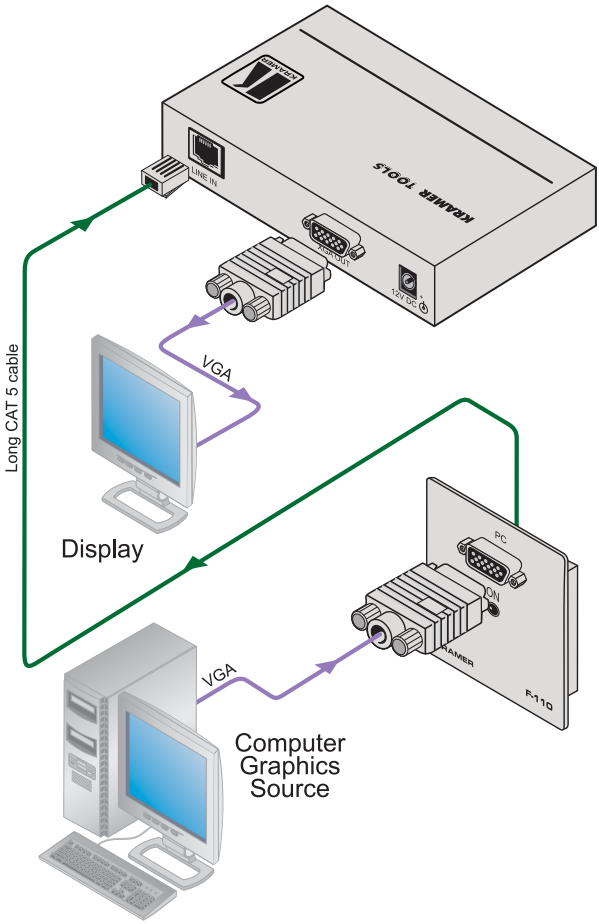


Figure 2: Connecting the F-110 to the TP-120

5.1 Wiring the 9-pin Terminal Block Line Output Connector

The 8-pin terminal block is an easy plug-in connector for attaching the UTP cable. Follow the colors of the color-coded sticker on these terminals for proper connection of the UTP cable. Figure 3 defines the pinouts for the terminal block.

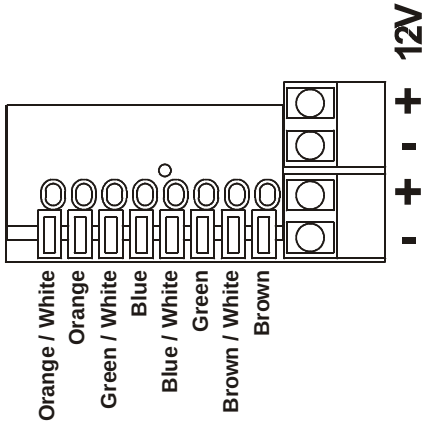


Figure 3: Terminal Block Pinouts

Notes:

- Use the connector clips only when removing wires, not when inserting them
- Each wire should protrude 9mm (0.35") from the plastic insulation so that it can be easily connected. To prevent the wires crossing, be sure that each wire is fully inserted

5.2 Wiring the CAT 5 LINE IN / LINE OUT RJ-45 Connectors

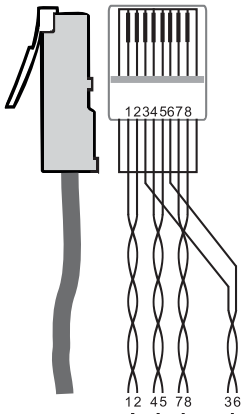
Table 2 and Figure 4 define the UTP CAT 5 PINOUT, on the RJ-45 connector:

Table 2: CAT 5 PINOUT

EIA /TIA 568A	
PIN	**Wire Color**
1	Green / White
2	Green
3	Orange / White
4	Blue
5	Blue / White
6	Orange
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	3 and 6
Pair 3	1 and 2
Pair 4	7 and 8

EIA /TIA 568B	
PIN	**Wire Color**
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	1 and 2
Pair 3	3 and 6
Pair 4	7 and 8

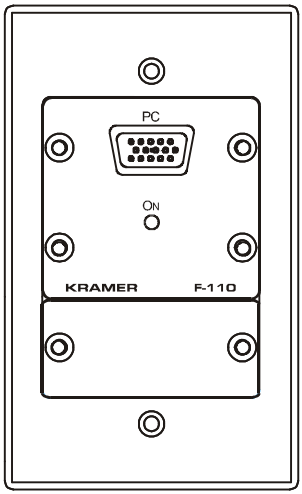
Figure 4: CAT 5 PINOUT

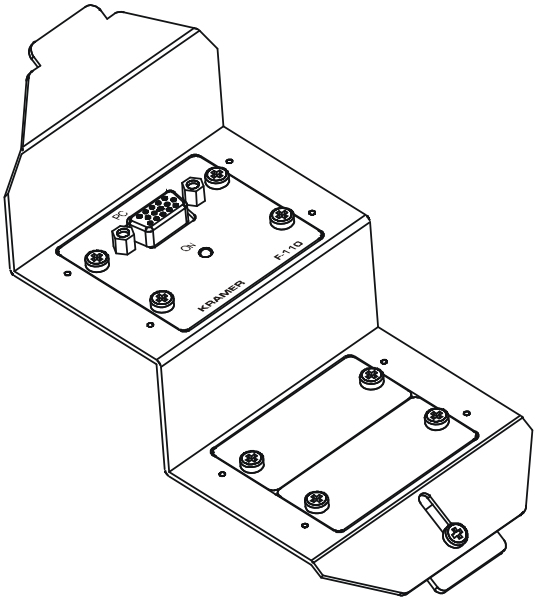
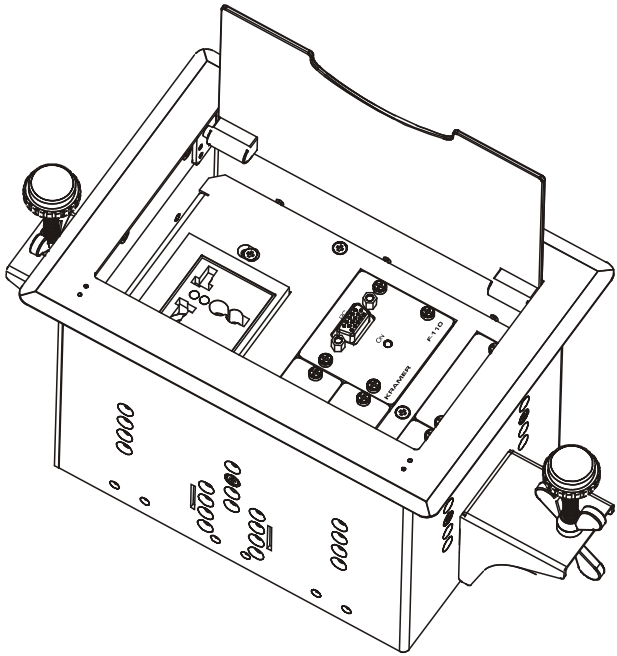


6 Using the F-110

Table 3 shows examples of how the **F-110** dual-slot wall-plate insert can be installed in various applications.

Table 3: F-110 Applications

F-110 installed in a wall plate insert frame (for example, the Kramer **FRAME 1G/US**):	

F-110 installed in an Ackermann floor box frame (for example, the Kramer **FLA-12**):	
F-110 installed in a TBUS connecting surface (for example, a Kramer **TBUS**):	

7 Technical Specifications

Table 4 lists the technical specifications:

Table 4: Technical Specifications[1] of the F-110

INPUT:	1 VGA / UXGA on a 15-pin HD connector
OUTPUT:	1 CAT 5 LINE OUTPUT on an 8-pin terminal block connector
RESOLUTION:	Up to UXGA
MAX. OUTPUT LEVEL:	2Vpp
DIFF. GAIN[2]:	6.3% (worst case)
DIFF. PHASE[2]	0.3 Deg (worst case)
K-FACTOR[2]:	<0.05%
S/N RATIO[2]:	69.5dB , 5MHz
CONTROLS:	ON power LED
COUPLING:	DC
POWER SOURCE:	12V DC 250mA, feeding receiver
DIMENSIONS:	5cm x 2.4cm x 4.7cm (1.97" x 0.94" 1.85") W, D, H
WEIGHT:	0.14kg (0.31lbs) approx.
ACCESSORIES:	Power supply

1 Specifications are subject to change without notice

2 For the transmitter/receiver pair

LIMITED WARRANTY

We warrant this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by us or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC* Rules and Regulations: Part 15: “Radio frequency devices Subpart B Unintentional radiators”

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Please use recommended interconnection cables to connect the machine to other components.

  * FCC and CE approved using STP cable (for twisted pair products)

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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